

YEFIMOV, A.F.; KRAVCHENKO, S.M.; VASIL'YEVA, Z.V.

Strontium apatite, a new mineral. Dokl. AN SSSR 142 no.2:439-  
442 Ja '62. (MIRA 15:2)

1. Institut mineralogii, geokhimii i kristallokhimii redkikh  
elementov AN SSSR. Predstavleno akademikom D.S.Korzhinskim.  
(Inagli region--Apatite)

YEFIMOV, A.F.; GORBACHEVA, T.B.

Potassium feldspars in the alkali pegmatites of the Inaglinskiy  
massif. Trudy Min. muz. no.14:231-237 '63. (MIRA 16:10)

(Inaglinskiy massif--Feldspar)  
(Inaglinskiy massif--Pegmatites)

YEFIMOV, A.F.; KRAVCHENKO, S.M.; VLASOVA, Ye.V.

Mineralogy of alkali pegmatites of the Inagli massif. Trudy  
IMGRE no.16:141-175 '63. (MIRA 16:8)

YAKOVLEVSKAYA, T.A.; YEFIMOV, A.F.

New data on the crystallography of minerals in the batisite-shcherbakovite series. Dokl. AN SSSR 151 no.6:1413-1415 Ag '63. (MIRA 16:10)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR i Institut mineralogii, geokhimii i kristalloghimii redkikh elementov AN SSSR. Predstavleno akademikom D.S.Korzhinskim.

ACCESSION NR: AP4004601

S/0020/63/153/004/0913/0915

AUTHOR: Dusmatov, V. D.; Yefimov, A. F.; Semenov, Ye. I.

TITLE: First find of stilwellite in the USSR

SOURCE: AN SSSR. Doklady\*, v. 153, no. 4, 1963, 913-915

TOPIC TAGS: rare earth mineral, stilwellite,  $\text{CeBSiO}_5$ , rare earth borosilicate, cerium borosilicate

ABSTRACT: In the USSR, stilwellite was first discovered in the pegmatites and hydrothermal veins associated with the alkaline rocks of the Alaysk Range in Tadzhikistan and the Inaglinsk massif in South Yakutia. In contrast to the Australian variety, this stilwellite has a fairly well-developed crystal form. The sizes range from 5 x 1 cm for the Tadzhikistan mineral to 0.3 x 0.1 cm for the Yakutian. The crystals are a combination of a hexagonal prism  $\{11\bar{2}0\}(\phi = 30^\circ, \rho = 0)$  and rhombohedron  $\{10\bar{1}1\}(\phi = 0^\circ, \rho = 56^\circ)$ . The chemical composition of the stilwellite found in the pure crystalline state is very close to the formula  $\text{CeBSiO}_5$ . Only a small substitution of the rare earths by thorium (up to 1.8%  $\text{ThO}_2$ ) can be observed.

Card 1/2

ACCESSION NR: AP4004601

The Australian stilwellite differs in a higher H<sub>2</sub>O, Ca, Al, Fe, and U content. A mineral of the iatolite group has also been encountered in the alkali pegmatites of the Alaysk Range, and leucosphenite in the Inagliusk pegmatites. All these minerals contain boron. Orig. art. has: 1 figure and 3 tables.

ASSOCIATION: Institut minerologii, geokhimii i kristalloghimii redkikh elementov (Institute of Mineralogy, Geochemistry, and Rare Earth Crystal Chemistry)

SUBMITTED: 11Mar63

DATE ACQ: 24Dec63

ENCL: 00

SUB CODE: IC

NO REF SOV: 000

OTHER: 002

Card 2/2

AUTHOR: Yefimov, A.G., Engineer SOV-118-58-10-13/16

TITLE: The Mechanization of the Finishing of Tires, and of Their Loading into Freight Cars at the Moscow Tire Plant (Mekhanizatsiya komplektovaniya shin i pogruzki ikh v vagony na Moskovskom shinnom zavode)

PERIODICAL: Mekhanizatsiya trudoyemkikh i tyazhëlykh rabot, 1958, Nr 10, pp 41 - 42 (USSR)

ABSTRACT: The process of the finishing of tires and of their subsequent loading into freight cars at the Moskovskiy shinnyy zavod (Moscow Tire Plant) was mechanized by the combined use of different types of conveyors. This cuts the loading time from 2 hours to 1 hour 20 minutes. There are 4 photos and 1 diagram.

1. Tires---Production 2. Tires---Handling

Card 1/1

YEFIMOV, A.G.

Auscultation of the knee joint in injuries of the meniscus.  
Khirurgiia no.9:56-59 '61. (MIRA 15:5)  
(KNEE--WOUNDS AND INJURIES) (AUSCULTATION)



YEfimov, A.I.

With maximal effect. Standartizatsiia 29 no.6:20-21

Je '65.

(MIRA 18:12)

**"APPROVED FOR RELEASE: 09/19/2001**

**CIA-RDP86-00513R001962320017-0**

**APPROVED FOR RELEASE: 09/19/2001**

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APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R001962320017-0"

The  $\alpha$  and  $\beta$  phases of  $\text{PbO}$  were formed in a vacuum furnace at 1000°C and 1050°C, respectively. The  $\alpha$  phase was characterized by X-ray diffraction and infrared spectroscopy. The  $\beta$  phase was characterized by X-ray diffraction and infrared spectroscopy. The  $\alpha$  phase was characterized by X-ray diffraction and infrared spectroscopy. The  $\beta$  phase was characterized by X-ray diffraction and infrared spectroscopy.

YEFIMOV, A.I.

Y  
YEFIMOV, A.I., Can Chem Sci -- (diss) *on the* *Processes of Disproportion*  
*under High Temperature, as an Example of Trichloride and*  
*"Hydroxychloride of Uranium"*, Len, 1958, 12 *pp* ~~pages~~  
(Leningrad Order of Lenin State University im A.A. Zhdanov).  
100 copies (Kl 10-58, 119)

- 7 -

GRIDNEV, V.N.; YEFIMOV, A.I.

Structure of ferritic grain boundaries. *Izv.vys.ucheb.zav.;*  
*chern.met.* no.3:86-90 '60. (MIRA 13:4)

1. Kiyevskiy politekhnicheskii institut.  
(Steel--Metallography)

YEFIMOV, A.I.  
GRIDNEV, V.N. [Hridniev, V.N.]; YEFIMOV, A.I. [IEfimov, O.I.]

Interferometric investigation of ferrite grain boundaries, Ukr. fiz.  
zhur. 5 no.6:834-838 '60. (MIRA 14:3)

1. Institut metallofiziki AN USSR.  
(Ferrates)

YEFIMOV, A. I., Cand. Tech. Sci. (diss) "Investigation of Structural and Phase Changes on Marginal Zones of Ferrite Module," Kiev, 1961, 13 pp. (Acad. of Sci. UkrSSR, Inst. of Metal-Ceramics and Special Alloys) 200 copies (KL Supp 12-61, 266).



GRIDNEV, V.N.; YEFIMOV, A.I.

Investigating the processes of decomposition and formation of  
boundary layers in chromium ferrates. Sbor. nauch. rab. Inst.  
metallofiz. AN URSR no.13:106-114 '61. (MIRA 14:12)  
(Chromium ferrate--Metallography)

GRIDNEV, V.N.; YEFIMOV, A.I.

Investigating relaxation phenomena in manganese ferrite. Izv. vys.  
ucheb. zav.; chern. met. 4 no.10:75-81 '61. (MIRA 14:11)

1. Kiyevskiy politekhnicheskii institut.  
(Iron-manganese alloys--Heat treatment)  
(Internal friction)

S/054/62/000/003/006/010  
B101/B186

AUTHORS: Vasil'kova, I. V., Yefimov, A. I.

TITLE: Interaction in the system  $\text{MoCl}_5$  -  $\text{FeCl}_3$

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii,  
no. 3, 1962, 98 - 100

TEXT: The fusibility curve for this system was plotted by thermographic investigation in the range 20-350°C. The system forms a simple eutectic, m.p. 185°C, of the composition 93 mole%  $\text{MoCl}_5$ , 7 mole%  $\text{FeCl}_3$ . In the range 50-60 mole%  $\text{MoCl}_5$  the solidus line could be determined exactly whereas the liquidus line was inaccurate. Tensimetric investigation with a glass membrane as a null manometer in the range 20-300°C gave the diagram p versus t. Down to liquidus temperature, the values obtained in cooling agreed with those determined in heating. On further cooling an elevated residual pressure of 100-200 mm Hg was observed due to gaseous chlorine formed on dissociation of  $\text{MoCl}_5$ , which, being poorly soluble in the solid phase, passes over into the gaseous phase on solidification.

Card 1/2

Interaction in the system...

S/054/62/000/003/006/010  
B101/B186

The p-versus-t curve confirmed the complex composition of the gaseous phase of the  $\text{MoCl}_5$  -  $\text{FeCl}_3$  system. Gas pressure over a melt consisting of 25.5 mole%  $\text{MoCl}_5$ , 74.5 mole%  $\text{FeCl}_3$ , is only half the pressure over pure  $\text{MoCl}_5$ . There are 3 figures. ✓

SUBMITTED: June 27, 1961

Card 2/2

VASIL'KOVA, I.V.; YEFIMOV, A.I.

Interaction in the systems molybdenum with pentachloride - alkali  
metal chloride. Zhur.ob.khim. 32 no.8:2742-2743 Ag '62.  
(MIRA 15:9)  
(Molybdenum chloride) (Alkali metal chlorides)

L 17434-63

EWP(q)/EWT(m)/BDS

AFFTC/ASD

JD/JG

9/0078/63/008/008/2001/2004

ACCESSION NR: AP3004359

AUTHORS: Yefimov, A. I.; Pitirinov, B. Z.

58

TITLE: Fusibility curves for RbCl-CrCl sub 3 and CsCl-CrCl sub 3 systems.

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 8, 1963, 2001-2004

TOPIC TAGS: Rb, RbCl, Cr, Cs, CrCl sub 3 CsCl, rubidium, chromium, cesium

ABSTRACT: Authors studied the interaction of alkali metals of rubidium and cesium with chromium trichloride. The fusibility curves of RbCl-CrCl<sub>3</sub> and CsCl-CrCl<sub>3</sub> were investigated by differential-thermal method. Fusibility curves for the above systems were constructed on the basis of results of the thermal analysis. The formation of congruent compounds of the composition Me<sub>3</sub>CrCl<sub>6</sub> and Me<sub>3</sub>Cr<sub>2</sub>Cl<sub>9</sub> (Me-Rb, Cs) was also found in these systems. Orig. art. has: 2 tables and 2 figures.

ASSOCIATION: none

SUBMITTED: 01Dec62

DATE ACQ: 21Aug63

ENCL: 00

SUB CODE: CH

NO REF SOV: 004

OTHER: 002

Card 1/1

ACCESSION NR: AT4010694

S/2601/63/000/017/0098/0110

AUTHOR: Gridnev, V. N.; Yefimov, A. I.; Kushnareva, N. P.; Khazanov, M. S.

TITLE: Structural changes during nonstationary annealing of turbine blades made of cast heat-resistant alloys on a nickel base

SOURCE: AN UkrRSR. Insty\*tut metalofizy\*ky\*. Sbornik nauchny\*kh trudov, no. 17, 1963. Voprosy\* fiziki metallov i metallovedeniya, 98-110

TOPIC TAGS: cracking, fissure turbine blade, gas turbine, thermal fatigue, heat-resistant alloy, cast alloy, thermocyclic stress, cyclic heat treatment, nonstationary annealing

ABSTRACT: Turbine blades work under conditions of a non-stationary temperature field. Thermal stresses which occur during starting up and shutting down lead to premature deterioration of the blades, because of the appearance and development of fractures due to thermal fatigue. In a number of studies it has been shown that surface layers play a decisive role in the resistance of heat-resisting alloys at high temperatures and in conditions of non-stationary annealing. The present study is devoted to the examination of structural changes in surface layers and in the internal zones of samples and blades made from cast alloys of complex components. Blades tested for thermal fatigue were studied.

Card 1/3

ACCESSION NR: AT4010694

Samples were annealed at 1000C for 30 seconds, exposed in a furnace for 4 minutes, and cooled in an air stream or water. Structural changes were studied by optical and electro-microscopic methods. The study of the structural state of samples subjected to cyclic treatment showed no noticeable changes in carbide components. There was no noticeable change between structures of the central and surface parts. No microfractures were noticed even after 400 cycles with cooling in an air stream. Stresses during such treatment were not sufficient to cause flaws. The study of the microstructure in the region of cracks showed that fracturing in the alloys occurs mostly along the lines of grain. In some cases one could see that the initial stage of decomposition was a sharp disintegration, which took the form of fractures along the lines of grains of the cellular structure. It appears that as a result of cyclic loads, defects were concentrated in these regions, which at certain stages caused the appearance of microfissures. The fact that the appearance of cracks was always connected with the formation of cellular structure made it necessary to determine under what conditions such a structure was formed, what its nature was, and what role it played in the appearance of cracks. It was found that cellular structure appeared in the region of 1180-1200C. Further increase in temperature speeded up the process of its formation. The rate of cooling had a definite effect. The greater the rate the more pronounced the cellular structure was. Until now one could only conjecture that the

Card 2/3



ACCESSION NR: AT4010694

formation of cellular structures might hasten the appearance of microcracks, which cracks could lead to the deterioration of blades. "Specimens which had been subjected to cyclic heat treatment were provided by V. I. Borisova." Orig. art. has: 6 figures.

ASSOCIATION: Insty\*tut metalofizy\*ky\* AN UkrRSR (Institute of Metallurgical Physics AN UkrRSR)

SUBMITTED: 00

DATE ACQ: 31Jan64

ENCL: 00

SUB CODE: MM, PR

NO REF SOV: 005

OTHER: 001

Card 3/3

VASIL'KOVA, I.V.; YEFIMOV, A.I.; PITIRIMOV, B.Z.

Enthalpy of the formation of  $\text{Na}_3\text{CrCl}_6$ ,  $\text{K}_3\text{CrCl}_6$ , and  
 $\text{K}_3\text{Cr}_2\text{Cl}_9$ . Zhur. neorg. khim. 9 no.3:754-755 Mr '64.  
(MIRA 17:3)

VASIL'KOVA, I.V.; YEFIMOV, A.I.; PITIRIMOV, B.Z.

Complex formation in the systems  $MeCl - CrCl_3$  (Me- an alkaline metal).  
Zhur.neorg.khim. 9 no.4:900-904 - Ap '64. (MIRA 17:4)

L 856-15 EPA/EWT(m)/EPP(n)-2/EPR/T-2/EPA(66)-2/EWP(b)-2/EWP(g)/EWP(h)/EWP(i)  
 DEPT: Paa-4/PS-4 AFTC: ASD/ASD(PT-5)/ASD(PT-5)/ASD(PT-5)/ASD(PT-5)/ASD(PT-5)/ASD(PT-5)  
 ACCESSION NR: AT4042832 5/2601/64/000/018/0047/0053

AUTHOR: Gridnev, V. N. Corresponding member AN UkrSSR; Yefimov, A. I.;  
 Kushnarenko, R. P.; Khazanov, M. S.

TITLE: Behavior of stator blades under conditions of steady and non-steady heating

SOURCE: An UkrSSR. Institut metallofiziki. Sbornik nauchnykh rabot, no. 18, 1964. Voprosy fiziki metallov i metallovedeniya (Problems in the physics of metals and physical metallurgy), 47-53

TOPIC TAGS: gas turbine, gas turbine blade, gas turbine stator blade, blade thermal fatigue, thermal fatigue resistance, rotor blade thermal fatigue

ABSTRACT: Gas-turbine stator blades, cast from an Ni-Cr alloy (unidentified), were held at 1000C for 100, 200, or 500 min, and then subjected to cyclic heat treatment, heating to 1200C in 30 sec, hold-  
 ing at 1200C for 30 sec, and cooling in the air stream to 50C in 30 sec. The atmosphere was similar to that existing in a real operating gas turbine. The blades were then held in an aggressive gas stream at a constant temperature of 1000C for 100, 200, or 500 min. The surfaces of the blades were examined after treatment.

8565-65

ACCESSION NR: AT4042832

addition of the precipitated  $\gamma'$ -phase. The  
precipitation on the blade, and it  
is possible that the blade is made of  
an alloy of the white metal. The blade is  
the appearance of the white metal. The blade is  
the alloying elements in the white metal. The blade is  
the alloying elements, shape, and distribution of the blade. The blade is  
the alloying elements, shape, and distribution of the blade. The blade is

increased by --

L 2565-6°

ACCESSION NR: AT4042832

thermal fatigue resistance of 25 cycles, which a blade had after heat-  
ing at 1000 for 100 min, increased to 100 cycles after mechanical  
polishing of the entire surface and to 22 cycles after a second polish-  
ing. Orig. art. has: 7 figures.

ASSOCIATION: Institut metallofiziki AN UkrSSR (Physics of Metals Institute,  
AN UkrSSR)

SUBMITTED: 18Mar63

ATD PRESS: 3096

ENCL: 00

NO REF SOV: 006

OTHER: 001

SUB CODE: PR

TITLE: A study of the internal friction of nickel at high temperatures

SOURCE: AN UkrSSR Institut metallofiziki. Sbornik nauchnykh trudov, no. 20, 1964

Internal friction in metals and alloys. Problems in the physics of metals and alloys. Vol. 1. Kiev, 1964. 110 p.

TOPIC TAGS: nickel structure, nickel internal friction, high temperature internal friction, internal friction, grain size, grain growth, grain boundary, grain boundary sliding, grain boundary migration, grain boundary pinning

ABSTRACT: The influence of grain size (annealing temperature) on the high-temperature internal friction in nickel of various degrees of purity was investigated. The temperature dependence of the internal friction in nickel of various degrees of purity was investigated.

ACCESSION NR AT500871

1. 15 ml prepared by electron beam

ASSOCIATION: Institut metallurgizatsii, AN. UkrSSR)

SECRET 164

ENCL. 00

SUB CODE: MM, TD

NO REF SOV: 009

OTHER: 010

Card 2/2



L 24465-66 EWI(m)/EWP(w)/EWP(f)/EPF(n)-2/EWA(d), EWP(v)/I/EPF(t)/EWP(k)/EWC(m)-  
 ACC NR: AT6008663 (N) SOURCE CODE: UR/0000/65/000/000/0204/0214  
 IJP(c) JD/WW/JG/EM/GS/JH  
 AUTHORS: Gridnev, V. N. (Kiev); Yefimov, A. I. (Kiev) 99  
 ORG: none B+1  
 TITLE: The role of surface layers in nozzle blade failure 18 26  
 SOURCE: Vsesoyuznoye soveshchaniye po voprosam staticheskoy i dinamicheskoy  
 prochnosti materialov i konstruktsionnykh elementov pri vysokikh i nizkikh  
 temperaturakh, 3d. Termoprochnost' materialov i konstruktsionnykh elementov (Thermal  
 strength of materials and construction elements); materialy soveshchaniya. Kiev,  
 Naukova dumka, 1965, 204-214  
 TOPIC TAGS: heat resistant alloy, turbine blade, surface property, metal surface,  
 internal friction, shear modulus, temperature dependence, cooling rate, hardness, steel  
 structure 18  
 ABSTRACT: The structural, physical, and mechanical properties of the surface of three  
 steel alloys which closely resemble the material found in the surface layers of gas  
 turbine blades were investigated and compared with the original heat-resistant alloy  
 properties (10.8% Cr, 5.3 Al, 2.8 Ti). The temperature dependence of microhardness  
 (300--1175K on PMT-3 testing machine), shear modulus, internal friction, elongation,  
 coefficient of thermal expansion, and surface structures was determined as a function  
 of cooling and heating rate. It was found that the microstructure of the surface  
 2

Card 1/2

L 24465-66

ACC Nk: AT6008663

layers was different from that of the inner regions and that their hardness was lower. Internal friction in the alloy surface layers was different from that of the basic alloy, but no difference in shear modulus could be established in the temperature range of 800-1175K. A significant difference in the coefficient of linear expansion was established at 1275K. Photographs of the microstructures and curves of the mechanical and physical properties are presented. Orig. art. has: 5 figures and 1 formula.

SUB CODE: 20, 21/ SUBM DATE: 19Aug65/ ORIG REF: 007/ OTH REF: 002

Card 2/2 *da*

L 24462-66 E+I(m)/ENP(w)/EWA(d)/ENP(v)/T/ENP(t)/ENP(k)/ETC(m)-6 LJP(c) ID/JG/  
ACC NR: AT6008665 WB/EM/GS (N) SOURCE CODE: UR/0000/65/000/000/0221/0227

AUTHORS: Khazanov, M. S. (Kiev); Yefimov, A. I. (Kiev); Molchanov, I. S. (Kiev)

ORG: none

TITLE: Several methods of improving the performance of nozzle blades

SOURCE: Vsesoyuznoye soveshchaniye po voprosam staticheskoy i dinamicheskoy prochnosti materialov i konstruktsionnykh elementov pri vysokikh i nizkikh temperaturakh, 3d. Termoprochnost' materialov i konstruktsionnykh elementov (Thermal strength of materials and construction elements); materialy soveshchaniya. Kiev, Naukova dumka, 1965, 221-227

TOPIC TAGS: thermal stress, thermal fatigue, turbine blade, metal fatigue, nickel base alloy, chromium base alloy, metal surface, annealing, corrosion resistance, heat resistance

ABSTRACT: The effects of smelting method (in vacuum and air), heat resistant alloying (with chromium), annealing (in argon), and protective coatings (thermal diffusion calorizing) on the thermal and corrosion resistant properties of a nickel-chromium based alloy were studied. The structure of the surface layers was also investigated by subjecting nozzle blades made of this alloy to thermal cycling (30 seconds to reach 1475K gas temperature, 30 seconds at 1475K, cooling in 325K air for one minute). Smelting was performed in an air induction furnace (LGPZ-60) and in a vacuum furnace

(VIAM-165,  $6 \cdot 10^{-3}$  mm Hg) and was followed by standard heat treatment. Annealing in  
Card 1/2

L 24462-66

ACC NR: AT6008665

3

<sup>21</sup>  
ARGON was performed at 1275 and 1375K and calorizing in a mixture of aluminum compounds at 1225K. The previously described method of M. S. Kazanov and I. S. Molchanov (ab. Voprosy vysokotemperaturnoy prochnosti v mashinostroyenii, Izd-vo AN UkrSSR, 1963) was used to evaluate the thermal resistance of the blades. The effect of the above factors on thermal fatigue, thermal resistance, and corrosion resistance of the blades is described quantitatively and is discussed qualitatively. Orig. art. has: 7 figures.

SUB CODE: 13,20/ SUBM DATE: 19Aug65/ ORIG REF: 005

Card 2/2 dda

L 05094-67 EWT(d)/EWP(1) LJP(r) BR/CG  
ACC NR: AP6013303 SOURCE CODE: UR/0413/66/000/000/0097/0098

AUTHORS: Bakshyev, A. I.; Vizun, Yu. I.; Yefimov, I. A.; Tarasov, L. G.

ORG: none

TITLE: A magnetic address decoder of a storage device with linear selection. Class 42, No. 180855 /announced by Institute of Precision Mechanics and Computational Technology, AN SSSR (Institut tochnoy mekhaniki i vychislitel'noy tekhniki AN SSSR)/

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 97-98

TOPIC TAGS: computer storage device, magnetic core storage, computer memory, memory address

ABSTRACT: This Author Certificate presents a magnetic address decoder of a storage device with linear selection. The decoder includes magnetic coordinate cores and a system of windings (see Fig. 1). The design increases the response time and simplifies the matching with semiconductor current shapers. The coordinate windings are made in the form of matched artificial delay lines. To provide these delay lines, capacitors are connected between the inductances (formed by the groups of windings of the coordinate cores) and the common busbar. Loads which are equal to the wave impedance of the delay lines are connected to the output of the lines.

Card 1/2

UDC: 681.142.07

L 05094-67

ACC NR: AP6013303

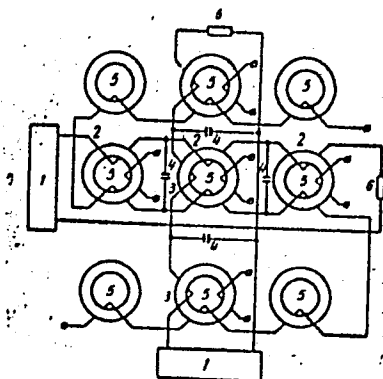


Fig. 1. 1 - coordinate current shapers;  
2 and 3 - coordinate windings; 4 - capacitors;  
5 - magnetic coordinate cores; 6 - loads

Orig. art. has: 1 figure.

SUB CODE: 09/ SUBM DATE: 16Feb65

Card 2/2 LC

YEFIMOV, A.I.; ZEMSKIY, S.V.

Investigating the distribution of phosphorus in iron-base alloys  
by the method of autoradiography. Sbor. nauch. trud. Inst. metallo-  
fiz. AN URSR no.20:171-179 '64. (MIRA 18:5)

USSR/Hydrology  
Permafrost

Jul 1946

"Subpermafrost Waters of the Central Yakutsk Region,"  
A. I. Efimov, 3 pp

PA 34734

"Priroda" No 7

Some 118 years ago a man named Shergin dug a well in Yakutsk to obtain water. Ten years later he was still digging without success, due to permafrost. At this time the Russian Academy of Sciences became interested, deepened the well to 115 meters, and named it the Shergin Shaft. It served well as a source for permafrost studies. It was determined that the permafrost layer in the vicinity of Yakutsk went as deep

34734

ID

Jul 1946

USSR/Hydrology (Cont'd)

as 185 - 200 meters. In 1939 the Institute for Frozen Soil Study sank a bore to a depth of 500 meters and continued its studies on the permafrost of the Yakutsk region. Briefly states some of the data available. The search for better water sources continues, however, spurred on by the increasing demands for water due to the rapid development of the northeastern territories.

34734

ID

YEFTIMOV, A. I.



YEFIMOV, A.I.

Suprapermafrost water conditions in Transbaikalia. Sov.geol  
no.26:77-90 '47. (MLRA 8:8)  
(Transbaikalia--Water, Underground) (Transbaikalia--  
Frozen ground)

YEFIMOV, A. I.

"Review of Prof. I. A. Sharova's Book 'The Theory of Establishing Watering Regimes for Agricultural Crops'," Pochvovedeniye, No. 6, 1949. Dir. of the Ak-Kavakskiy Station, -cl949-.

YEFTIMOV, A. I.

Yakutsk Artesian Basin of Sub-perma frost waters.  
Izvest. Akad Nauk SSSR, seriya geol. #4, 1945

S0: Trudy Arkticheskogo Nauchno-Issledovatel'skogo  
Instituta, GUSMP, Council of Ministers, Vol 201,  
1948

YEFIMOV, A. I.

"Drying of Thermal Karst Lakes of Central Yakut," Mërzlotovedeniye. (Permafrost Science),  
Vol 1, No 2, 1946 (91-94).  
(Meteorologiya i Gidrologiya, No 6 Nov/Dec 1947)

SO: U-3218, 3 Apr 1953

YEFIMOV, A.I.

GRAVE, N.A. [translator]; TOLSTOV, A.N. [translator]; USOVA, T.V. [translator];  
CHEKOTILLO, A.M. [translator]; YEFIMOV, A.I., red.; ZNAMENSKAYA, V.K.,  
red.; GRIBOVA, M.P., tekhn. red.

[Frozen ground of Alaska and Canada; a collection of articles]

[Translated from the English] Merzlye gornye porody Aliaski i

Kanady; sbornik statei. S predisl. A.I. Efimova. Moskva. Izd-vo

inostr. lit-ry, 1958. 262 p.

(MIRA 11:7)

(Alaska--Frozen ground) (Canada--Frozen ground)



SOV/30-18-1-20/45

**Investigation of Ground Waters and the Technical Geology of East Siberia.  
Transactions of the Conference in Chita**

sources (SSR), **i. e.**, Territorial administrations of **Chita** and **Irkutsk, Buryat-Mongolia** and by the **Sosnovskaya expedition**. 145 representatives from 50 different institutions of the country participated in the work of the conference. Out of 81 reports submitted 67 were accepted. Among other problems, the first variant of a hydrogeological large-scale map of the Asiatic part of the USSR was discussed in the first plenary meetings, as well as results of the investigation of the mineral springs of the southern part of East Siberia. The further work of the conference proceeded in three sections: For general problems and problems of research methods, for regional hydrogeology, for technical geology and frozen soil science. The fast progress of industrialization in East Siberia, and the further development of its agriculture present new tasks. The meeting outlined a further program of future work. This incorporates an increase of the area to be covered by cartographical survey and the compilation of a number of maps. The meeting recommended to establish special departments of hydrology and technical geology in the territorial geological administrations of the Ministry of Geology and Protection of

Card 2/3

Investigation of Geom. Factors and the Technical Geology of East Siberia.  
Transactions of the Conference in Chita

SOV/34-50-2-20/23

General Resources of the USSR and to enlarge the Department  
of Geology and Technical Geology at the Institute of Geo-  
logy of the East Siberia Branch. Laboratories for comprehensive  
investigations are to be established in Chita and Ulan-Ude.  
New subjects are to be introduced at the University and the  
Polytechnical Institute at Irkutsk.

Card 3/3



SOLOV'YEV, P.A.; GRAVE, N.A., otv.red.; YEFIMOV, A.I., otv.red.; KOTLYA-  
REVSKAYA, P.S., red.izd-va; SIMKINA, G.S., tekhn.red.

[Permafrost zone in the northern part of the Lena-Amga inter-  
fluve] Kriolitozona severnoi chasti Leno-Amginskogo mezhd-  
rech'ia. Moskva, Izd-vo Akad.nauk SSSR, 1959. 143 p.

(MIRA 13:1)

(Lena Valley--Frozen ground)

(Amga Valley--Frozen ground)

YEFIMOV, A.I.

Sprinkling the earth in a diamond district. Priroda 48 no.6:113-114  
Je '59. (MIRA 12:5)

1. Institut merzletovedeniya im. V.A. Obrucheva AN SSSR, Moskva.  
(Yakutia--Diamond mines and mining)

BELOKRYLOV, Ivan Dmitriyevich; YEFIMOV, Andrian Ivanovich; GRAVE, N.A.,  
otv.red.; GOLEVA, Ye.M., red.izd-va; NIKOLAYEVA, I.N., red.  
izd-va; LEBEDEVA, L.A., tekhn.red.

[Permafrost in iron and coal deposits of southern Yakutia]  
Mnogoletnemerzlye porody zony zhelezorudnykh i ugol'nykh mesto-  
rozhdenii Iuzhnoi Iakutii. Moskva, Izd-vo Akad.nauk SSSR,  
1960. 73 p. (MIRA 14:2)  
(Yakutia--Ore deposits) (Yakutia--Frozen ground)

YEFIMOV, A.I.; SHUMSKIY, P.A.

Ground ice in the environs of Krest-Khal'dzhay on the Aldan River.  
Mat. k osn. uch. o merz. zon. zem. kory no.5:15-40 '60.

(MIRA 13:10)

(Krest-Khal'dzhay region--Frozen ground)

RYABCHENKOV, A.S.; ANTONENKO, K.I.; TITOV, N.A.; CHAPOVSKIY, Ye.G.;  
CHURINOV, M.V.; KONOPLYANTSEV, A.Z.; VIKTOROV, S.V.; VOSTOKOVAYA,  
Ye.A.; SADOVSKIY, N.D.; KUDELIN, B.I.; OGIL'VI, N.A.;  
LUNGERSGAUZEN, G.F.; BRODSKIY, A.A.; SHCHERBAKOV, A.V.; POPOV,  
V.N.; YEMEL'YANOVA, S.P.; SOKOLOV, S.S.; BERSENEV, I.I.; GROSHIN,  
S.I.; MAKKAVEYEV, A.A.; MARINOV, N.A.; YEFIMOV, A.I.; ASSOVSKIY,  
G.N.; VLADIMIROV, A.G. [deceased]; PROKHOROV, S.P.; FILIPPOVA,  
B.S., red. izd-va; BYKOVA, V.V., tekhn. red.

[Methodological manual on hydrogeological surveying at the scales  
of 1:1,000,000 - 1:500,000 and 1:200,000 - 1:100,000] Metodiche-  
skoe rukovodstvo po gidrogeologicheskoi s"emke masshtabov  
1:1000 000 - 1:500 000 i 1:200 000 - 1:100000. Pod obshchei  
red. A.A.Makkaveeva i A.S.Riabchenkova. Moskva, Gos. nauchno-  
tekhn. izd-vo lit-ry po geol. i okhrane neдр, 1961. 318 p.  
(MIRA 15:3)

1. Russia (1923- U.S.S.R.) Ministerstvo geologii i okhrany neдр.  
(Water, Underground) (Geological surveys)

TKACHUK, V.G., otv. red.; TOLSTIKHIN, N.I., red.; POPOV, I.V., red.;  
ZAYTSEV, I.K., red.; ~~YEFIMOV, A.I.~~, red.; PAL'SHIN, G.B.,  
red.; GRECHISHCHEV, Ye.K., red.; ASTRAKHANTSEV, V.I., red.;  
PERLOVICH, B.F., red.; PECHERSKAYA, T.I., tekhn. red.

[Transactions of the Second Conference on Underground Waters  
and the Engineering Geology of Eastern Siberia held in Chita,  
1958] Trudy Soveshchaniia po podzemnym vodam i inzhenernoi  
geologii Vostochnoi Sibiri. Irkutsk, Irkutskoe knizhnoe izd-  
vo. No.4. 1961. 161 p. (MIRA 16:4)

1. Soveshchaniye po podzemnym vodam i inzhenernoy geologii  
Vostochnoy Sibiri. 2d, Chita, 1958.  
(Siberia, Eastern--Water, Underground)  
(Siberia, Eastern--Engineering geology)

*YEFIMOV, A.I.*

PHASE I BOOK EXPLOITATION

SOV/5885

Akademiya nauk SSSR. Institut merzlotovedeniya

Polevyye geokriologicheskiye (merzlotnyye) issledovaniya; metodicheskoye rukovodstvo (Geocryological [Permafrost] Field Studies; Methodological Handbook) Moscow, Izd-vo AN SSSR, 1961. 422 p. Errata slip inserted. 1500 copies printed.

Editorial Board: Chairman, I.Ya. Baranov, Doctor of Geographical Sciences, Professor, S.P. Kachurin, Doctor of Geographical Sciences, A.I. Yefimov, Candidate of Geographical and Mineralogical Sciences, and N.A. Vel'mina, Candidate of Technical Sciences; Eds. of Publishing House: A.A. Priklonskiy and I.N. Nikolayeva; Tech. Ed.: V.G. Laut.

PURPOSE: This book is intended for the growing number of specialists in various branches of the national economy who are concerned with engineering problems in permafrost soils.

COVERAGE: Three types of geocryological field investigations are discussed:  
1) geocryological surveying, for detecting regularities in cryogenic processes, compiling geocryological maps illustrating the distribution of

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Geocryological [Permafrost] Field (Cont.)

80V/5885

permafrost areas, and for indicating the boundaries of sections with various degrees of suitability for construction; 2) subject studies of cryogenic formations (ice bodies, heaving mounds, polygonal-veined ice, etc.) and postglacial formations (thermokarst, solifluctional, etc.), which are of great importance for practical engineering; and 3) long-range stationary and semistationary observations during geocryological and engineering-geocryological surveying, for studying the dynamics of the temperature field in the zones of seasonal temperature fluctuations, regimen of the layers of seasonal freezing and thawing, heaving phenomena, fissure formation, subsidence, ground creeping, mechanical and thermal interaction between the structures and enclosing rocks or foundation grounds, etc. The handbook was compiled by a group of staff members of the Institute of Permafrost Study imeni V.A. Obruchev, AS USSR. No personalities are mentioned. References follow individual chapters.

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Introduction by I.Ya. Baranov

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Ch. I. Purpose and Scope of the Geocryological Survey. I.Ya. Baranov

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Ch. II. Nature of Studies in the Geocryological Survey

37

The distribution of permafrost rocks, the layer of seasonal freezing and thawing, and the temperature field of rocks are discussed.

Ch. III. Some Field Laboratory Studies

93

The analysis of physical properties of frozen rocks, the application of the crystallooptic method, and the preservation of samples in the frozen state are discussed.

Ch. IV. Methods of Field Studies in Geocryological Surveying

136

Geophysical investigations, the application of aerial methods, the geobotanical method, and the investigation of underground waters and surface waters are discussed.

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Principles and methods of geocryological mapping and typical symbols for such maps are given.		
PART II. STUDIES OF GEOCRYOLOGICAL FORMATIONS		
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Geocryological [Permafrost] Field (Cont.)

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Appendix II. Questionnaire Form for Field Records of Permafrost  
soils

420

AVAILABLE: Library of Congress

SUBJECT : Geology and Geography

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MM/wrc/bc  
2-8-62

YEFIMOV, Adrian Ivanovich, DEMENT'YEV, Anatoliy Ivanovich, 1  
PCHELINTSEV, Aleksandr Mikhaylovich, USHKALOV, V. P.,

"Engineering and geocryological research"

report to be submitted for the Intl. Conference on Permafrost, Purdue Univ.,  
Layayette, Indiana, 11-15 Nov 63

YEFIMOV, Adrian Ivanovich, TO<sup>L</sup>STIKHIN, N. <sup>I</sup>~~F~~, VELMINA, N. A.,

"Hydrogeology in areas of permanently frozen rocks in the USSR"

report to be submitted for the Intl. Conference on Permafrost, Purdue Univ.,  
Lafayette, Indiana, 11-15 Nov 63

YEFIMOV, A.I.; BELORUKOVA, L.P.; RYNDINA, A.M.

Complex compounds of the  $M\text{e}_2^1 \text{MoCl}_6$  type. Zhur.neorg.khim. 8  
no.5:1168-1171 My '63. (MIRA 16:5)  
(Molybdenum chlorides) (Alkali metal chlorides) (Thermal analysis)

GRIDNEV, V.N.; YEFIMOV, A.I.; KUSHNAREVA, N.P.; KHAZANOV, M.S.

Investigating the behavior of nozzle blades in conditions  
of steady and unsteady heat flow. Sbor. nauch. rab. Inst.  
metallofiz. AN URSR no.18:47-53 '64 (MIRA 17:8)

... (1)/ZRC(k)-2/ENC(v)/ENK(d)/EEC-4/  
AUTHOR: Korobov, M. A. Rozgon, Yu. K.

TITLE: Meter-wave propagation in interplanetary space

SOURCE: Radiotekhnika i elektronika, v. 9, no. 10, 1964, 1735-1739

TOPIC TAGS: interplanetary space, meter wave, meter wave propagation, radio wave propagation

ABSTRACT: The results of an investigation of 183.6-Mc radio-wave propagation are presented and compared with some published data. The level of a signal is determined by comparing it with the

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L 11111-65

ACCESSION NR: AP4046671

were not reliable, the maximum possible attenuation is estimated as  $4 \pm 2$  db over a 50-million-km distance in interplanetary space. A comparison of these primary results with other American, British, and Soviet published data brings about these conclusions: (1) The meter-band radiowave attenuation over

AS 11111-65

SUBMITTED: 05 May 64

ENC 1

Card 2/2

KOLOSOV, M.A.; YAKOVLEV, O.I.; YEFIMOV, A.I.; SHVACHKIN, K.M.; ROZGON, Yu.K.

Propagation of meter-long radio waves in the interplanetary space.

Radiotekh. i elektron. 9 no.10:1735-1739 0 '64.

(MIRA 17:11)

L 2884-66 EWT(d)/FBD/FSS-2/EWT(1)/EEC(k)-2/EWA(d) TT/RB/GS/GH/WS-4  
 UR/0000/65/000/000/0227/0233  
 ACCESSION NR: AT5023589

AUTHOR: Kolosov, M. A.; Yakovlev, O. I.; Yefimov, A. I.

TITLE: Propagation of radio waves in interplanetary and near solar space <sup>44</sup> <sup>BT</sup>

SOURCE: <sup>55</sup> Vsesoyuznaya konferentsiya po fizike kosmicheskogo prostranstva. Moscow, 1965. Issledovaniya kosmicheskogo prostranstva (Space research); trudy konferentsii. Moscow, Izd-vo Nauka, 1965, 227-233

TOPIC TAGS: <sup>55</sup> radio emission, <sup>55</sup> radio wave propagation, radio wave absorption

ABSTRACT: A study of radio wave propagation from Mars-1 at 183.6 Mc and reception at distances of up to 50 million km is reported. The study included analysis of radio wave propagation at distances of the order of 300 million km on the basis of radio emission data from Taurus A. In particular, an attempt was made to determine 1) the maximum possible values of monochromatic radio wave attenuation in interplanetary space, 2) the attenuation of radio waves with a white spectrum in the near solar region, 3) the effect of the interplanetary medium on radio wave propagation, and 4) the possible mechanism of monochromatic radio wave attenuation. Analysis of signals from Mars-1 indicates signal fadings have an irregular character which cannot be entirely explained either by the effect of ionospheric inhomogeneities

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L 2884-66

ACCESSION NR: AT5023589

or by the random rotation of the polarization plane due to the Faraday effect. This irregular character is therefore attributed to the effect of the interplanetary medium. An assumption is also advanced that during the propagation of radio waves at such distances a change in their spectrum may occur. Orig. art. has: 2 figures and 1 table. [JR]

ASSOCIATION: none

SUBMITTED: 02Sep65

ENCL: 00

SUB CODE: AA, EC

NO REF SOV: 012

OTHER: 018

ATD PRESS: 4109

Card 2/2

L 21826-66 EWP(k)/EWT(d)/EWT(m)/ETC(m)-6/T/EWP(w)/EWP(v)/EWP(t) 13P(c)  
 ACC NR: AT6008662 (N) SOURCE CODE: UR/0000/65/000/000/0195/0203  
 EM/JD/HW/JG/GS

AUTHORS: Gridnev, V. N. (Kiev); Yegorshina, T. V. (Kiev); Yefimov, A. I. (Kiev);  
 Khazanov, M. S. (Kiev)

ORG: none

TITLE: A study of the structure of the surface layers and of thermal stability of  
 cast nozzle blades under conditions of stationary and nonstationary heating

SOURCE: Vsesoyuznoye soveshchaniye po voprosam staticheskoy i dinamicheskoy  
 prochnosti materialov i konstruktivnykh elementov pri vysokikh i nizkikh tempera-  
 turakh, 3d. Termoprochnost' materialov i konstruktivnykh elementov (Thermal  
 strength of materials and construction elements); materialy soveshchaniya. Kiev,  
 Naukova dumka, 1965, 195-203

TOPIC TAGS: turbine blade, gas turbine, thermal stability, nickel base alloy,  
 chromium base alloy, metal surface, gas dynamics, high temperature instrument

ABSTRACT: The effect of the duration of heating at constant temperature on the  
 structure and chemical composition of thin surface layers and on the thermal  
 stability of cast nozzle blades with a nickel-chromium base is studied. The blades

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ACC NR: AT6008662

H

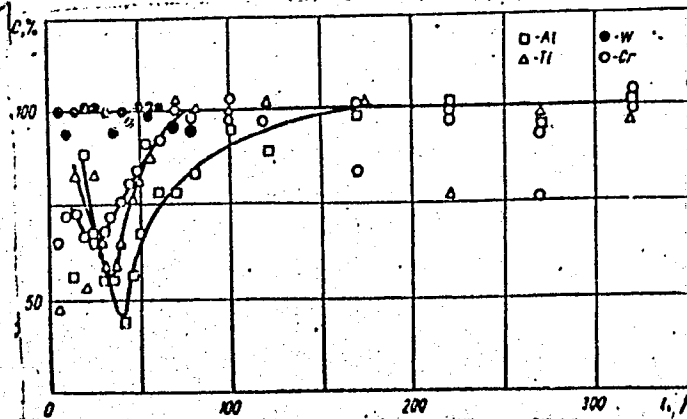
were heated at a constant gas temperature of 1275K for 100, 200, 500, and 1000 min. Then the blades were subjected to thermocyclic treatment: 1) heating to 1475K, 30 sec; 2) held at 1475K for 30 sec; and 3) cooling in an air jet (325K) for 60 sec. The structure was revealed with etching agents (92 cc HCl, 3 cc HNO<sub>3</sub>, 5 cc H<sub>2</sub>SO<sub>4</sub>).

Heating of the blades in a high-temperature stream leads to depletion of the chromium, aluminum, and titanium in the surface layer (see Fig. 1).

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Fig. 1. Change in relative content of chromium, aluminum, titanium, and tungsten in surface layer of blade after 480 cycles.



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L 21826-66

ACC NR: AT6008662

The thermal stability of blades with depleted surface layers was found to be lower than in the original state. Mechanical repolishing of blades heated under steady conditions increases the thermal stability. Annealing in argon decreases considerably the depth of the depleted zone. Orig. art. has: 3 photographs and 3 graphs.

SUB CODE: 11/ SUBM DATE: 19Aug65/ ORIG REF: 006/ OTH REF: 003

Card 3/3 nst

L 22608-66 FBD/EWT(1) GM/WS-2  
ACC NR: AP6011441

SOURCE CODE: UR/0109/66/011/004/0617/0622

AUTHOR: Yakovlev, O. I.; Yefimov, A. I.; Shvachkin, K. M.

ORG: none

TITLE: Attenuation of radio waves in interplanetary space and in the vicinity of the Sun

SOURCE: Radiotekhnika i elektronika, v. 11, no. 4, 1966, 617-622

TOPIC TAGS: radio wave absorption, radio wave propagation, space communication

ABSTRACT: A study of attenuation of meter-band radio waves in interplanetary space and in the vicinity of the Sun is discussed. A method of precise measurements of radio emission from radio source Taurus-A was employed. The measurements were made from March through December 1964 at 184 Mc and various values of angle  $\psi$ . The bandwidth of the antenna radiation pattern permitted measurements at  $\psi \geq 5^\circ$ . On the basis of the measurements, the following conclusions were reached: 1) There is no attenuation (within limits of  $\pm 5\%$ ) in the propagation of radio waves with a continuous spectrum at the 1.6-m band for a distance of  $3 \times 10^8$  km when the energy beam propagates at a distance of  $2.5 \times 10^7$  km from the Sun. 2) Little attenuation was observed during the propagation of radio waves with a continuous spectrum at the 11-, 3.5-, and 1.6-m bands through all the interplanetary space within the Earth's orbit

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UDC: 621.371.191/.192:523.164.3



L 22608-66

ACC NR: AP6011441

when the energy beam propagates at a distance of  $1.3 \times 10^7$  km from the Sun.  
3) During the propagation of monochromatic radio waves at the meter band in inter-planetary space and in the vicinity of the sun a change in the spectrum could be observed which leads to the development of apparent attenuation during reception by a narrow-band receiver. Orig. art. has: 2 figures, 9 formulas, and 1 table.  
[GS]

SUB CODE: 17/ SUBM DATE: 26Jan65/ ORIG REF: 008/ OTH REF: 013/ ATD PRESS:

4228

Card 2/2 *De*

L 04181-67 EWT(m)/T/EWP(t)/ETI/EWP(k) LJP(c) JD/HW/GD  
ACC NR: AT6026904 SOURCE CODE: UR/0000/66/000/000/0025/0032

AUTHOR: Belous, O. A.; Gridnev, V. N.; Yefimov, A. I.; Kushnareva, N. P.

ORG: none

TITLE: Effect of annealing temperature and purity on high temperature internal friction in nickel <sup>21</sup> <sub>14</sub>

SOURCE: AN SSSR. Institut metallurgii. Vnutrenneye treniye v metallakh i splavakh (Internal friction in metals and alloys). Moscow, Izd-vo Nauka, 1966, 25-32

TOPIC TAGS: internal friction, high temperature, temperature dependence, high purity metal, plastic deformation, impurity content, grain size, recrystallization, annealing

ABSTRACT: Internal friction in the 200-900°C range on deformed and annealed nickel of 99.9%, 99.99% and higher purity was studied. The nickel was drawn about 95% and the wire samples were annealed at different temperatures. Internal friction was measured on a torsion pendulum operated at 1.7-2 cps. Changes in internal friction are given as functions of test temperature for samples previously annealed at 300 to 1200°C. At 200°C the background was greatest for samples annealed at the lower temperatures as a result of the increased amount of crystal lattice defects. For all annealing temperatures, a grain boundary relaxation peak occurred at 410-430°C, the height of which de-

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ACC NR: AT6026904

3  
creased with rise in annealing temperature. In 99.9% nickel, the peak was unsymmetrical due to auxiliary relaxation processes occurring at 550-700°C. A metallographic examination showed that the recrystallization temperature of 99.9% nickel was 350°C. The grain size of 99.9%, 99.99% and electron beam remelted nickel are given as a function of annealing temperature. A heterogeneous grain structure was observed at 600-700°C. The largest grain growth occurred in the purest material: electron beam remelted nickel. In nickel of lower purity, the slow grain growth, even at an annealing temperature of 1200°C, was caused by the impedance of grain boundary migration due to impurities. The height of the grain boundary peak decreased with grain size and impurity content. For 99.99% nickel, two internal friction peaks occurred, one at 400-440°C and the other at 620-630°C. The heights of both peaks decreased with a rise in annealing temperature or grain size. In 99.99% nickel, a heterogeneous grain structure was recrystallized at 600°C, at which point the height of the peaks dropped sharply. The 625°C peak height increased with a rise in internal friction heating rate. It also decreased monotonically as a result of maintaining the sample at 625°C for periods up to 1 hr during internal friction testing. This peak was related to secondary recrystallization in the 99.99% nickel since the activation energy of recrystallization was higher than that of grain boundary relaxation. In electron beam melted nickel an extreme amount of background damping was observed in deformed samples. This damping became negligible after annealing at 300°C. Only one peak, corresponding to grain boundary relaxation, occurred in the 460-490°C range for the ultrapure nickel. However, anneal-

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L 04181-67

ACC NR: AT6026904

ing above 1000°C shifted this peak to the 600-625°C range. This change was associated with substructure formation under axial loading (25 g/mm<sup>2</sup>) imposed at the higher temperatures. Orig. art. has: 6 figures. 0

SUB CODE: 11,20/

SUBM DATE: 02Apr66/

ORIG REF: 009/

OTH REF: 006

Card 3/3 *LC*

L 43948-66 EWT(m)/EWP(k)/EWP(t)/ETI IJP(c) JD/HW/JG/GD  
 ACC NR: AT6026908 SOURCE CODE: UR/0000/66/000/000/0050/0056  
 AUTHOR: Gridnev, V. N.; Yefimov, A. I.  
 ORG: none  
 TITLE: Internal friction and shear modulus of nickel-chromium base heat-resistant alloys  
 SOURCE: AN SSSR. Institut metallurgii. Vnutrenneye treniye v metallakh i splavakh (Internal friction in metals and alloys). Moscow, Izd-vo Nauka, 1966, 50-56  
 TOPIC TAGS: nickel alloy, chromium containing alloy, titanium containing alloy, aluminum containing alloy, niobium containing alloy, molybdenum containing alloy, tungsten containing alloy, heat resistant alloy, alloy internal friction, alloy shear modulus  
 ABSTRACT: The internal friction and shear modulus of heat-resistant nickel-chromium base alloys Kh22N78, VZh98, EI437B, EI607, EI617 and ZhS6-K (see Table 1) have been investigated at temperatures ranging from 20C—1000C. Alloy specimens, 0.8 mm in diameter x 150 mm long, were prepared by cold drawing, except for cast ZhS6-K alloy specimens, which were prepared by grinding. No significant changes in internal  
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 56  
 BT1

L 43948-66

ACC NR: AT6026908

9

Table 1. Nickel-chromium alloys

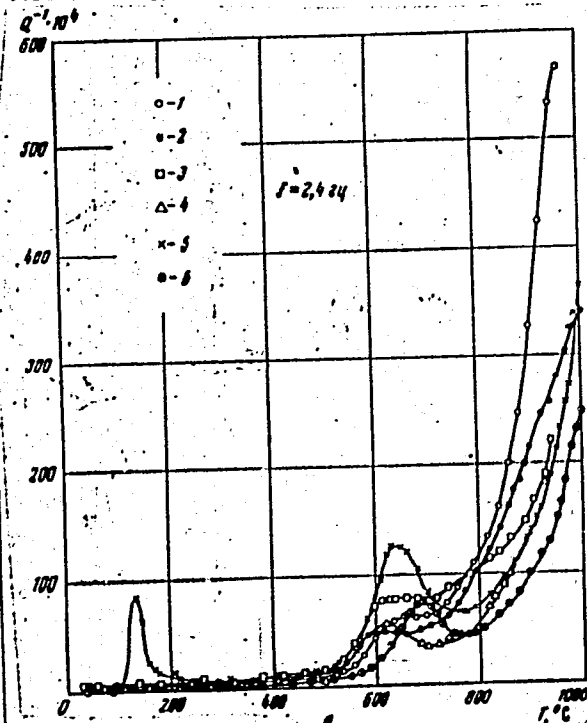
Alloy	Chemical composition, %									
	C	Cr	Ti	Al	Nb	Mo	W	V	Co	B
Kh22N78	—	22	—	—	—	—	—	—	—	—
VZh98	<0,1	23,5— 26,5	0,3—0,7	0,5	—	—	13,0—16,0	—	—	—
EI437B	<0,08	19—23	2,0—2,9	0,4—1,1	—	—	—	—	—	0,008
EI607A	<0,09	15—17	1,8—2,3	0,5—1,0	1,0—1,5	—	—	—	—	—
EI617	0,08	15	2	2	—	3	7	0,3	—	0,008
ZhS6-K	0,14	10,8	2,8	5,3	—	3,8	4,9	—	4,5	0,008

friction were observed at temperatures up to 500C, except for a peak at 160—170C in the case of VZh98 alloy (see Fig. 1). Starting at temperatures of 500C, the internal friction increases and a peak or plateau is observed in the temperature range 650—750C. Temperatures above 800C bring about a new increase of internal friction. The shear

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L 43948-66

ACC NR: AT6026908



modulus decreases almost linearly, up to 600C; above this temperature, a deviation from the linear rate was observed. Orig. art. has: 3 figures and 3 tables. [TD]

SUB CODE: 11/ SUBM DATE: 02Apr66  
ORIG REF: 012/ OTH REF: 006  
ATD PRESS: 5061

Fig. 1. Temperature dependence of internal friction in heat-resistant alloys.

1 - Kh22N78; 2 - EI607A;  
3 - EI617; 4 - EI437B;  
5 - VZh98; 6 - ZhS6-K.

Card 3/3 hs

L 04183-67 EWT(m)/I/EWP(t)/ETI IJP(c) JD/JG/GD  
ACC NR: AT6026909 SOURCE CODE: UR/0000/66/000/000/0056/0062

AUTHOR: Belous, O. A.; Gridnev, V. N.; Yefimov, A. I.; Mil'man, Yu. V.; Trefilov, V. I.

ORG: none

TITLE: The effect of annealing temperature on  $Q^{-1}$  and G-purity chromium and alloys of chromium with yttrium and gadolinium ✓ 16 2/

SOURCE: AN SSSR. Institut metallurgii. Vnutrenneye treniye v metallakh i splavakh  
(Internal friction in metals and alloys). Moscow, Izd-vo Nauka, 1966, 56-62

TOPIC TAGS: internal friction, annealing, temperature dependence, chromium, high purity metal, yttrium, gadolinium, metallographic examination, grain structure, dislocation effect

ABSTRACT: The effect of annealing temperature on temperature dependent internal friction was studied in zone melted chromium, Cr + 1% Y, and Cr + 1% Gd. Wire samples of 0.8 mm diameter were drawn at 300°C to about 95%. These wires were annealed before testing for 1 hr at temperatures ranging from 100 to 1100°C. At low testing temperatures the internal friction in the pure chromium was twice as low as that in the alloys. In all cases, the internal friction decreased as a function of annealing temperature; in zone refined chromium, the internal friction dropped from  $15 \cdot 10^{-4}$  to  $5 \cdot 10^{-4}$  after annealing to 300°C; in Cr + 1% Y, the internal friction decreased at 50°C after

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ACC NR: AT6026909

annealing up to 600°C. These changes were partially caused by the redistribution of interstitial impurities during annealing. Transmission electron microscopy showed that the density and distribution of dislocations did not change after annealing up to 400°C. Thus in the alloys the internal friction decrease was caused by polygonization. Microstructures did not show any differences between pure chromium and the alloys that would account for the internal friction recovery. At high testing temperatures, the internal friction increased sharply due to grain boundary relaxation. The rise in internal friction at high temperatures was the same for all of the metals. The shift in initial rise of internal friction with annealing was caused by a decrease in both dislocation density and grain boundary area. After annealing at similar temperatures, the value of internal friction was highest in the alloys, due to the retardation of recrystallization by alloying. In the 300-600°C temperature range, the change in  $Q^{-1}$  was caused by polygonization in Cr + 1% Y (the recrystallization temperature of Cr-Y is above 800°C), while in pure chromium above 600°C it was due to recrystallization. Internal friction peaks occurred at 900°C in pure chromium at an oscillation frequency of 2.8 cps. In Cr + 1% Gd a similar grain boundary peak occurred at 960-970°C at a frequency of 2.1 cps. In Cr + 1% Y the peak was not observed because alloying with yttrium raised the peak into a higher temperature range. The temperature dependence of the square of the frequency is proportional to the shear modulus. Deviations from linearity were observed in the same temperature range where the sharp rise in  $Q^{-1}$  was observed. This change in shear modulus was caused by grain boundary relaxation and lat-

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tice inhomogeneity. The authors express their gratitude to V. G. Epifanov of the  
Institute of Metal Physics, AN UkrSSR for supplying the zone melted chromium, produc-  
ed by three zone passes. Orig. art. has: 4 figures. 16

SUB CODE: 11,20/

SUBM DATE: 02Apr65/

ORIG REF: 011/

OTH REF: 008

Card 3/3 LC

ACC NR: AP6033049 SOURCE CODE: UR/0126/66/022/002/0227/0233

AUTHOR: Yefimov, A. I.; Kushnareva, N. P.; Statkevich, V. N.;  
Trefilov, V. I.

ORG: Institute of Physics of Metals, AN UkrSSR (Institut metallofiziki  
AN UkrSSR); Electric Welding Institute im. Ye. O. Paton, AN UkrSSR  
(Institut elektrosvarki AN UkrSSR)

TITLE: Structure sensitivity of plastic properties of electron beam  
melted molybdenum alloys

SOURCE: Fizika i metallov i metallovedeniye, v. 22, no. 2, 1966,  
227-233

TOPIC TAGS: molybdenum, molybdenum alloy, molybdenum alloy structure,  
molybdenum alloy, plasticity, METAL CRYSTAL

ABSTRACT: Specimens of electron-beam melted molybdenum and Mo-C-Ti<sup>27 27</sup>  
and Mo-B-Ti alloys have been subjected to bending tests in the as-cast  
and annealed (in vacuum at 2000C for 1 hr) conditions. It was found  
that the plasticity of molybdenum alloys depends, to a great degree,  
on their structure. Specimens of pure molybdenum and Mo-C-Ti alloy cut  
from the ingots along their longitudinal axes had crystals positioned  
in the lengthwise direction and they were plastic. As-cast pure

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ACC NR: AP6033049

molybdenum longitudinal specimens withstood bending to 180°, without failure, while annealed specimens failed at 150° in a transcrystalline manner. Specimens of Mo-C-Ti alloy broke at a 150—160° bending angle with a fracture along the grain. Specimens of pure molybdenum and Mo-C-Ti alloy cut across the ingot axis were predominantly brittle and broke at 0°, with the exception of annealed specimens which broke at 70—90°. All longitudinal and crosssectional specimens of Mo-C-Ti alloy were brittle, showing predominantly transcrystalline fracture. It was established that alloys with high plasticity have clearly developed fragmentation and a disorientation of substructure fragments of 2—4°. Orig. art. has: 4 figures and 1 table.

SUB CODE: 11/ SUBM DATE: 22Dec65/ ORIG REF: 010/ OTH REF: 018

Card 2/2

ACC NR: AP6036377 (N) SOURCE CODE: UR/0109/66/011/011/2064/2066

AUTHOR: Yakovlev, O. I.; Yefimov, A. I.

ORG: none

TITLE: Fluctuation characteristics and spectrum of radio waves propagating in the interplanetary space

SOURCE: Radiotekhnika i elektronika, v. 11, no. 11, 1966, 2064-2066

TOPIC TAGS: radio wave propagation, interplanetary space, interplanetary communication

ABSTRACT: Rapid fluctuation of energy stream propagating in the interplanetary space has been observed (A. Hewish et al., Nature, 1964, 203, 4951, 1214) when the radiowave sources have small (1 angle minute or less) size. This fluctuation is due to the rapidly-moving statistically-inhomogeneous plasma that fills the

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ACC NR: AP6036377

space between the planets (A. Hewish et al., Monthly Notices, Royal Astr. Soc., 1963, 126, 5, 467). Formulas are derived which describe the mean square amplitude fluctuation, the mean square phase fluctuation, and the energy-spectrum width in terms of  $L$  and  $\psi$ ; the radiowave path is described by its length  $L$  and the angle  $\psi$  between the direction to the Sun and the direction to the radio source, the receiver being located on the Earth. Orig. art. has: 1 figure and 13 formulas.

SUB CODE: 03, 09 / SUBM DATE: 01Mar66 / ORIG REF: 007 / OTH REF: 002

Card 2/2

ACC NR: AP6036386

SOURCE CODE: UR/0210/66/000/007/0092/0097

AUTHOR: Yefimov, A. I.; Dukhin, I. Ye.

ORG: none

TITLE: Maximum depth of occurrence of perennially frozen rock

SOURCE: Geologiya i geofizika, no. 7, 1966, 92-97

TOPIC TAGS: geology, physical geology, geocryology, frozen rock, perennially frozen rock, perennially frozen rock depth, permafrost, depression/Tunkin

ABSTRACT: The authors discuss the possibility of the occurrence of perennially frozen rock to depths of 1200—1300 m in the Tunkin depression and elsewhere in the vicinity of Lake Baykal. Data obtained by other authors, principally A. P. Bulmasov, and the arguments presented by them for and against the occurrence of perennially frozen rock at such great depths are analyzed, as is the reliability of the gravimetric methods used in obtaining the data. A table is included which presents information on instances of perennially frozen rock at maximum depths (isothermal lower surface temperature 0°C) in Europe, Asia, and North America.

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UDC: 551.52

ACC NR: AP6036386

The table in the original article shows name place, location, predominating rocks, average annual air temperature, rock temperature at specific depths, maximum depth of occurrence, and source of data. [W-79-67-4] [SP]

SUB CODE: 08/SUBM DATE: none/ORIG REF: 024/OTH REF: 004/

Card 2/2



YEFIMOV, A. K.

Reinforced Concrete Construction

Effect of cracks in lightly reinforced constructions on the lay out of reinforcement.  
Gidr. stroi. 21 no. 2, 1952

MONTHLY LIST OF RUSSIAN ACCESSIONS, LIBRARY OF CONGRESS, JULY, 1952. UNCLASSIFIED.

*Yefimov, H.K.*

YEFIMOV, A.K., inzh., red.; KHAVIN, B.N., red.izd-va; BL'KINA, E.M., tekhn.red.

[Norms and technical specifications for calculating maximum water consumption in designing hydraulic installations on rivers]  
Normy i tekhnicheskie usloviia dlia rascheta maksimal'nykh raskhodov vody pri proektirovanii gidrotekhnicheskikh sooruzhenii na rekakh. (SN a-57). Moskva, Gos.izd-vo lit-ry po stroit.i arkhit., 1957. 31 p. (MIRA 11:1)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva.

(Hydraulic engineering)

YEFIMOV, A.K., inzhener.

Increasing economy in constructing lightly reinforced hydraulic  
structures. Gidr. stroi. 26 no.5:31-33 My '57. (MLRA 10:6)  
(Hydraulic engineering) (Reinforced concrete construction)

AUTHOR: Yefimov, A.K., Engineer SOV-98-58-10-13/16

TITLE: Reinforcement of Hydrotechnical Reinforced Concrete Structures (Armirovaniye zhelezobetonnykh gidrotekhnicheskikh sooruzheniy)

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1958, <sup>27</sup>Nr 10, pp 47-48 (USSR)

ABSTRACT: Point 53a of GOST is criticized by the author. He agrees with V.I. Vutsel's article entitled "Reinforcements of Hydrotechnical Reinforced Concrete Structures", that reinforced concrete structures, designed according to the above GOST are uneconomical. Working formulae for designing the reinforced concrete structures are given. There are 3 Soviet references.

1. Structures--Design 2. Reinforced concrete--Economic aspects

Card 1/1

KLETENIK, D.V. [author]; SADOVSKIY, L.Ye. [reviewer]; EFIMOV, N.V. [redaktor].

"Collection of problems in analytical geometry." D.V. Kletenik. Reviewed  
by L.E. Sadovskii. Usp. mat. nauk. 8 no. 4:208-210 J1-Ag '53. (MLBA 6:8)  
(Geometry, Analytic) (Kletenik, D.V.)

POGORELOV, A.V. [author]; YEFIMOV, N.V. [reviewer].

"Unique determinability of general convex surfaces." A.V. Pogorelov. Re-  
viewed by N.V. Efimov. Sov.kniga no.8:6-8 Ag '53. (MLA 6:8)  
(Surfaces of constant curvature) (Pogorelov, A.V.)

POGORELOV, A.V. [author]; YEFIMOV, N.V. [reviewer].

"Flexure of convex surfaces." A.V. Pogorelov. Reviewed by N.V. Efimov. Usp.  
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POGORELOV, A.V. [author]; YEFIMOV, N.V. [reviewer].

"Unique determinability of general convex surfaces." A.V. Pogorelov. Reviewed  
by N.V. Efimov. Usp. mat. nauk 8 no. 5:214 S-0 '53. (MIRA 6:10)  
(Surfaces of constant curvature)



YEFIMOV, A. I., Ed.

Collection of Instructions for Quarantine Inspection of Agricultural and  
Forest Crops, State Office of External and Internal Quarantine of Plants,  
Moscow, 1935, 104 pp. 464.47 Bf6

So: SIRA- S1-90-53, 15 Dec 1953

YEFIMOV, A. I.

Report of a Study of Plant Quarantine in the Cotton Belt of the U.S.A.,  
State Office of External and Internal Quarantine of Plants, Moscow, 1936,  
64 pp. 464.4 Ef6P

So: SIRA -Sl-90-53, 15, Dec 1953

YEPIHOV, A. I. (Editor)

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Belorussian Academy of Science, Minsk, 1936, 131 pp. 464.1 K66

So: SIRA\* S1-90-53, 15 Dec. 1953

YEFIMOV, A. L.

AM

EFIMOV (A. L.), KAZAN (I. A.), KRADINOVA (Mimo M. D.), OBOLENSKY (V. N.), & SHUTHERBINOVSKY (N. S.). Карантин растений в СССР. [Plant quarantine in U.S.S.R.]-Publ. НКЗ СССР, Сест. энсу. u synmp. Karantin. Rastenub. [U.S.S.R. People's Commissariat Agric. Sect. intern. extern. Pl. Quar.], Moscow, 254 pp., 84 figs., 1937. [Received June, 1938.]

This is a revised edition of the official list of insect pests and plant-pathogenic bacteria and fungi falling under the 1935 plant quarantine regulations [R.A.M., xv, p. 399], supplemented by detailed descriptions of each disease, with notes on its geographical distribution, control measures, and quarantine regulations existing in other countries.